

Technical Working Party for Vegetables

TWV/57/26 Corr.

**Fifty-Seventh Session
Antalya, Türkiye, May 1 to 5, 2023****Original:** English
Date: September 26, 2023

REPORT*Adopted by the Technical Working Party for Vegetables**Disclaimer: this document does not represent UPOV policies or guidance*Opening of the session

1. The Technical Working Party for Vegetables (TWV) held its fifty-seventh session, in Antalya, Türkiye, from May 1 to 5, 2023, in hybrid format. The list of participants is reproduced in Annex I to this report.
2. The session was opened by Ms. Marian van Leeuwen (Netherlands), Chairperson of the TWV, who welcomed the participants and thanked Türkiye for hosting the TWV session.
3. The TWV was welcomed by Mr. Mehmet Hasdemir, PhD, General Director of Plant Production, Ministry of Agriculture and Forestry, and received welcoming remarks from Mr. Muhtesem Torun, Secretary General, Turkish Seed Union (TÜRKTÖB).

Adoption of the agenda

4. The TWV adopted the agenda as presented in document TWV/57/1 Rev. 2.

Increasing participation in the work of the Technical Committee (TC) and restructuring the work of the Technical Working Parties (TWPs)

5. The TWV considered document TWP/7/1 and noted the proposed draft recommendations under development at the Working Group on DUS support.
6. The TWV welcomed the possibility to hold the meetings in hybrid format to take advantage of the presence of experts both on-site and remotely.
7. The TWV agreed with the recommendation that TGP subgroups could meet in conjunction with other UPOV meetings, such as when discussing topics of particular relevance for a TWP (e.g. disease resistance characteristics for vegetable crops).
8. The TWV noted the recommendation on administrative support to be provided by the Office of the Union for TGP subgroup meetings and agreed to propose that the involvement of the Office of the Union should be agreed with the leading expert, whenever required.
9. The TWV agreed to propose that the measures implemented to restructure the work of the TWPs should be evaluated in the future and adjusted as required.

Development of guidance and information materials

10. The TWV considered document TWP/7/2.

Matters for consideration by the Technical Working Parties

Document TGP/7 “Development of Test Guidelines”

Example varieties for asterisked quantitative characteristics when illustrations are provided

11. The TWV considered the situations described by the TWO as the basis to develop guidance on possible exceptions to the requirement to provide example varieties for asterisked quantitative characteristics when illustrations were provided.

12. The TWV recalled that, at its fifty-sixth session, it had agreed as follows (see document TWV/56/22 “Report”, paragraph 9):

“The TWV agreed that example varieties should continue to be provided for asterisked quantitative characteristics for vegetable crops. The TWV agreed that example varieties could be easily provided for vegetable crops and were useful for harmonizing DUS examination and producing variety descriptions. The TWV recalled that guidance in document TGP/7 required example varieties for three or two states of expression, according to the scale of notes used.”

13. The TWV agreed that example varieties were important for training for DUS experts and plant breeders using Test Guidelines. The TWV agreed that illustrations should be used to complement example varieties in explanations and whenever plant material of a particular variety was not available.

Disease resistance characteristics: Addition of state of expression and placement of non-asterisked disease resistance characteristics in Section 5 of the Technical Questionnaire

14. The TWV agreed to amend document TGP/7 GN 13 “Characteristics with specific functions” to clarify that disease resistance characteristics not indicated with an asterisk in the table of characteristics may be presented in Section 5 of Technical Questionnaires (TQ) with the addition of a state of expression “not tested”, as set out in document TWP/7/2, paragraph 21, when the characteristic was not used as a grouping characteristic.

Document TGP/12 ‘Guidance on certain physiological characteristics’

Example disease resistance characteristic: Word “highly” in only one state of expression

15. The TWV considered whether to revise the states of expression in the example characteristic in document TGP/12/2, Section 2.3.2, to address the use of the word “highly” in only one state of expression.

16. The TWV noted that the characteristic from the Test Guidelines for Melon used as example in document TGP/12/2, Section 2.3.2, was under revision. The TWV agreed that the example characteristic in document TGP/12 should be amended as in the proposed revision of TG melon, to read as follows:

70. VG	Resistance to <i>Podosphaera xanthii</i> (Px) (ex <i>Sphaerotheca fuliginea</i>) (Powdery mildew)		

70.1	Race 1 (Px: 1)		
(+)			
QN	absent or low	Védrantais	1
	medium	Escrito	2
	high	Arum	3

Assessing distinctness in disease resistance characteristics

17. The TWV considered document TWV/57/10.
18. The TWV considered the criteria for disease resistance characteristics in UPOV Test Guidelines, as set out in document TWV/57/10, paragraph 11.
19. The TWV agreed that the standard scales of notes for quantitative (QN) characteristics should be used where appropriate for disease resistance characteristics, such as the condensed scale (Notes 1-3) in the following example: “Resistance to disease ‘x’” with states of expression “absent or low”, note 1; “medium”, note 2; and “high”, note 3.
20. The TWV considered the assessment of distinctness on the basis of a one note difference for disease resistance characteristics using a condensed quantitative scale of three notes (Notes 1-3). The TWV recalled that, on a side-by-side comparison, “a difference between two varieties is acceptable as soon as it can be assessed visually and could be measured, although such measurement might be impractical or require unreasonable effort”, as set out in document TG/1/3 “General Introduction”, section 5.5.2.2.2.
21. The TWV recalled that, for side-by-side visual comparisons, “when the comparison was performed at the level of measured values (MG, mean of MS) a difference smaller than two Notes might represent a clear difference”, as set out in document TGP/9 “Examining Distinctness”, Section 5.2.3.2.3.3.
22. The TWV noted that statistical methods were used for the assessment of distinctness for disease resistance characteristics and recalled that “[...] two varieties which are found to be significantly different for one or more quantitative characteristics may be considered to be distinct” (see document TGP/9 “Examining Distinctness”, Section 5.2.4.5.3).
23. The TWV agreed there were certain quantitative (QN) disease resistance characteristics where it was not possible to describe different levels of resistance according to QN states of expression because of the influence of testing conditions and the lack of information on genetic background.
24. The TWV agreed to invite the experts from France and the Netherlands, with the support of the European Union, Japan and the breeders’ organizations, to draft a proposal for a special type of quantitative disease resistance characteristic with only two states of expression. The TWV agreed that the proposal with an explanation on the criteria for using this type of characteristic should be presented at the fifty-eighth session of the TWV.
25. The TWV received a presentation on “Disease resistance characteristics” by an expert from Euroseeds, on behalf of CropLife International, Euroseeds and the International Seed Federation (ISF). A copy of the presentation is presented in document TWV/57/10 Add.
26. The TWV noted that the terminology used in the condensed scale of notes (notes 1; 2; 3) for quantitative disease resistance characteristics in UPOV Test Guidelines differed from the terminology used in the vegetable seed sector.
27. The TWV agreed that the following table provided the equivalence of states of expression in UPOV Test Guidelines with the terminology used in the vegetable seed sector:

Equivalence of states of expression in UPOV Test Guidelines with the terminology used in the vegetable seed sector		
	State of expression in UPOV Test Guidelines	Terminology used in the vegetable seed sector¹
UPOV notes	Resistance to (disease resistance name) is:	Reaction of a plant variety to a specific pest is:
1	absent or low	Susceptibility (S)
2	medium	Intermediate Resistance (IR)
3	high	High Resistance (HR)

¹ Source: <https://worldseed.org/>

28. The TWV agreed to propose that the table of equivalence was added to document TGP/12 “Guidance on Certain Physiological Characteristics” as part of the explanations to the Standard Resistance Protocol in that document. The TWV agreed that the same table should be included in explanations for quantitative disease resistance characteristics when the condensed scale of notes was used.

Image analysis of vegetable crops

29. The TWV received a presentation on “Image analysis for tomato fruit” by an expert from China. A copy of the presentation is presented in document TWV/57/24.

30. The TWV recalled that document TGP/8, Section 11 “Examining characteristics using image analysis” provided that “characteristics which may be examined by image analysis should also be able to be examined by visual observation and/or manual measurement, as appropriate.” The TWV agreed that image analysis was useful for automating the assessment of measured characteristics and to support the analysis of large numbers of varieties.

Molecular Techniques

31. The TWV considered document TWP/7/3.

Confidentiality and ownership of molecular information

32. The TWV noted that experts from members and observers at the TWPs had been invited to report existing policies on confidentiality of molecular information.

33. The TWV received a presentation on “Confidentiality of Molecular Information” by an expert from CropLife International, on behalf of the African Seed Trade Association (AFSTA), the Asia and Pacific Seed Association (APSA), the International Community of Breeders of Asexually Reproduced Horticultural Plants (CIOPORA), CropLife International, Euroseeds, the International Seed Federation (ISF) and the Seed Association of the Americas (SAA). A copy of the presentation is presented in document TWV/57/25.

34. The TWV noted the proposals from the breeders’ organizations on the situations when they would wish authorization from the breeder to be, or not to be, required prior to disclosing molecular information with any third parties. TWV participants requested clarification on the particular situations described in the proposals, including how to obtain authorization for the constitution of shared databases containing molecular information.

35. The TWV noted that the Community Plant Variety Office of the European Union (CPVO) created a Working Group to revise the CPVO policy on the status of plant material used for DUS testing purposes. The TWV noted that South Africa and Türkiye had policies on confidentiality of molecular information and only shared information with the consent of the breeders.

Denomination classes for *Allium*, *Brassica* and *Prunus*

36. The TWV considered document TWP/7/4.

Amending variety denomination classes for Brassica

37. The TWV agreed to propose the amendments to the variety denomination classes for *Brassica*, as set out in document TWP/7/4, paragraph 13.

New variety denomination classes for Allium

38. The TWV agreed to propose the creation of new variety denomination classes within the genus *Allium*, as set out in document TWP/7/4, paragraph 15.

Replacing botanical nomenclature by variety groups

39. The TWV considered document TWV/57/18.

40. The TWV agreed to propose that variety groups should be used to replace complex infraspecific botanical names for *Beta vulgaris*, *Brassica oleracea* and *Cichorium intybus*.

Beta vulgaris

41. The TWV agreed to propose the creation of variety groups Fodder Beet; Garden Beet; Leaf Beet; and Sugar Beet for *Beta vulgaris* ssp. *vulgaris*, as set out in document TWV/57/18, Annex I.

Brassica oleracea

42. The TWV agreed to create variety groups for *Brassica oleracea*, as set out in document TWV/57/18, Annex I. The TWV agreed to propose two new appended elements indicating variety groups “Tronchuda” (1TRON) and “Kale” (2KAL), to be used in with UPOV Code BRAS_OLE_COS.

Cichorium intybus

43. The TWV agreed to propose the creation of four variety groups for *Cichorium intybus*: Witloof Chicory; Leaf Chicory; Industrial Chicory; and Forage Chicory.

44. The TWV agreed to propose two new appended elements to be used with the UPOV Code CICHO_INT to indicate “Witloof Group” (1WIT) and “Forage Chicory” (2FOR).

45. The TWV agreed to propose amending the common names in GENIE to read as follows:

UPOV code	Botanical names in GENIE	GRIN	Proposed Group name	English	French	German	Spanish
CICHO_INT_1WIT	<i>Cichorium intybus</i> L.	<i>Cichorium intybus</i> L.	Witloof Chicory Group	Witloof chicory	Endive	Chicorée	Endivia
CICHO_INT_FOL	<i>Cichorium intybus</i> L. var. <i>foliosum</i> Hegi	<i>Cichorium intybus</i> L.	Leaf Chicory Group	Salad Chicory; Leaf chicory	Chicorée à feuille; Chicorée italienne	Salatzichorie	Achicoria
CICHO_INT_SAT	<i>Cichorium intybus</i> L. var. <i>sativum</i> DC.	<i>Cichorium intybus</i> L.	Industrial Chicory Group	Industrial Chicory; Large-rooted Chicory	Chicorée à café	Wurzelzichorie	Achicoria de café
CICHO_INT_2FOR	<i>Cichorium intybus</i> L.	<i>Cichorium intybus</i> L.	Forage Chicory Group	Forage Chicory	Chicorée fourrage	Futterzichorie	Achicoria forrajera

46. The TWV agreed to propose inviting contributors to the PLUTO database to consider updating the UPOV code used for varieties previously reported as CICHO_INT using the UPOV codes associated with the proposed variety groups.

47. The TWV received a presentation on “Replacing botanical nomenclature by variety groups, some practical consequences” by an expert from the European Union. A copy of the presentation is provided in document TWV/57/18, Annex II. The TWV noted the report on the use of variety groups for different vegetable crops and agreed to invite the European Union to present proposals for appending information to UPOV Codes and/or creating variety groups at its fifty-eight session.

Zea mays

48. The TWV considered document TWP/7/7.

49. The TWV agreed to create variety groups for the UPOV code ZEAAA_MAY_MAY replacing infra-specific botanical names, as set out in document TWP/7/7, paragraph 12.

Experiences with new types and species

50. The TWV noted that no experiences with new types and species had been reported.

Revision of Test Guidelines

51. The TWV considered document TWP/7/9.

Additional characteristics / states of expression

52. The TWV noted the notification to the Office of the Union of the additional state of expression in the Test Guidelines for Asparagus (document TG/130) and additional characteristic on the Test Guidelines for Lettuce (document TGP/13), as set out in document TWP/7/9, Annexes I and II.

53. The TWV agreed to invite Japan to propose a draft for partial revision of the Test Guidelines for Asparagus to consider the additional state of expression notified to the Office of the Union (Characteristic 16).

54. The TWV agreed that the additional characteristic on the Test Guidelines for Lettuce should be posted on the TG Drafters' webpage of the UPOV website. The TWV agreed that a partial revision would not be required to consider the inclusion of the additional characteristic notified.



Discussions on draft Test Guidelines

Full draft Test Guidelines

*Chinese cabbage (*Brassica rapa* L. subsp. *pekinensis* (Lour.) Kitam., hybrids between *B. rapa* L. Emend. Metzq. ssp. *pekinensis* (Lour.) Hanelt and *B. rapa* L. Emend. Metzq. ssp. *chinensis* (L.) Hanelt, hybrids between *B. rapa* L. Emend. Metzq. ssp. *pekinensis* (Lour.) Hanelt and *B. rapa* L. var. *rapa* (L.) Thell., *B. xturicensis* O. E. Schulz & Thell.) (Revision)



55. The subgroup discussed document TG/105/5(proj.3), presented by Mr. Chan Woong Park (Republic of Korea), and agreed the following:

5.3 (b), (c)	to be updated according to changes to characteristics
Char. 11	to replace "dark" by "strong"
Char. 24	state 5 to read "broad oblong"
Char. 25	to read "Head: degree of overlapping of leaves" and have states of expression absent or weak (1), weak to medium (2), medium (3), medium to strong (4), strong (5)
Char. 26	- to read "Head: color of upper part" - state 3 to read "medium green" - to replace example variety "Bando" with "Jinqing60"
Char. 29	to delete example variety "Bando"
Char. 33	- to be indicated as VS/MS - to delete (c)
8.1 (a)	to read "Observations ..." (plural)
Ad. 5	- to be presented in a grid - to improve illustrations for notes 2 to 4 to clarify the difference between these states of expression (e.g. to adjust illustration for note 3)
Ad. 13	to read "Observations should be made excluding the leaf base."
Ad. 14	to increase picture size
Ad. 15	to read "Observations should be made on the distal part of the leaf."
Ad. 16	to read "Observations should be made on the basal part of the leaf."
Ad. 21	to read "Observations should be made on the inner side of the leaf."
Ad. 24	to renumber states of expression from left to right; then from bottom to top (ovate (1), circular (2), elliptic (3), etc.)
Ad. 27	to increase picture size

Ad. 33	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In the case of a field trial, the type of observation is VS. In the case of a DNA marker test, the type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div></div> <p>male fertile (pollen present)</p> <div></div> <p>male sterile (pollen absent)</p> <p>DNA marker test:</p> <p>If the CMS marker is not present, the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers.</p> <p>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
TQ 4.2	to delete request for hybrid production scheme

*Kale (*Brassica oleracea* L. var. *costata* DC.; *B. oleracea* L. var. *medullosa* Thell.; *B. oleracea* L. var. *sabellica* L.; *B. oleracea* L. var. *viridis* L.; *B. oleracea* L. var. *palmifolia* DC.) (Revision)

56. The subgroup discussed document TG/90/7(proj.5), presented by Mr. Toshia Kobayashi (Japan), and agreed the following:

Char. 14	to delete example variety "Lerchenzungen"
Char. 28	to be indicated as VS/MS
8.1 (b)	to read "on fully developed leaves" (delete "the")
Ad. 22	to last part of sentence "as depicted..."
Ad. 26	reference to be made to char. 25 (See Ad. 25 instead of 24)
Ad. 28	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In the case of a field trial, the type of observation is VS. In the case of a DNA marker test, the type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>male fertile (pollen present)</p> </div> <div style="text-align: center;">  <p>male sterile (pollen absent)</p> </div> </div> <p>DNA marker test:</p> <p>If the CMS marker is not present, the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers.</p> <p>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
TQ 5.6	to be deleted
TQ 5.7	To delete example variety "Lerchenzungen"

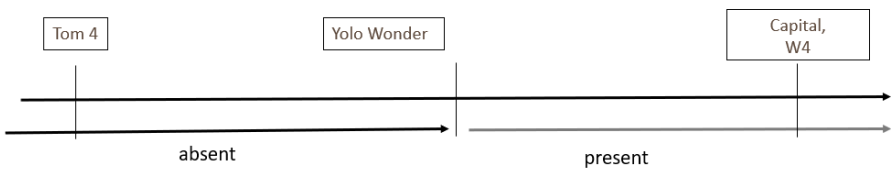
*Parsley (*Petroselinum crispum* (Mill.) Nyman ex A.W. Hill) (Revision)

57. The subgroup discussed document TG/136/6(proj.1), presented by Ms. Swenja Tams (Germany), and agreed the following:

3.4.1	to check whether to reduce number of plants for root parsley
6.5	to correct spelling of "leaf type"
Chars, 1 to 3, 7, 8, 10, 11, 12, 13, 17, 21, 24	to correct wording of state 2 (to read "very short to short", "very loose to loose", "very weak to weak", etc.)w
Char. 6	to check whether to clarify "intermediate type" examples
Char. 9	to check whether to add illustration
Char. 12	to check whether to have states from "very low" to "very high" (ratio)
Chars. 15, 16	to check whether to revise states of expression
Char. 24	- to add missing note 7 - state 9 to read very strong
8.	number of "Explanations for individual characteristics" to read 8.2
TQ 5.	to check whether members use additional characteristics

*Pepper (*Capsicum annuum* L.) (Revision)

58. The subgroup discussed document TG/76/9(proj.5), presented by Ms. Marian van Leeuwen (Netherlands), and agreed the following:

Char. 27	to add underlining to "Only varieties with..."
Char. 37	to add (*)
Char. 40	- state 1 to read "smooth or weakly wrinkled" - state 2 to read "moderately wrinkled"
Ad. 25	to remove notes 1 and 3 from illustrations and wording to read below illustrations to read "fertile" (left photo) and "sterile" (right photo)
Ad. 66, 12.	to replace current figure with the following one: 
TQ 5.	to add option "not tested" to disease resistances without (*), except for those characteristics being used as grouping characteristics
TQ 5.4	to delete char. 15 from TQ 5
TQ 7.3	to add the following: "Type of culture: - protected (greenhouse, tunnel, etc.) [] - in the open [] "It is highly recommended that a representative color photograph of the variety accompany the TQ."

*Tomato (*Solanum lycopersicum* L.) (Revision)



59. The subgroup discussed document TG/44/12(proj.3), presented by Ms. Cécile Marchenay (Netherlands), and agreed the following:

Char. 16	to be moved after char. 44
Char. 27	to be moved after char. 44 (after time of flowering)
Char. 44	to correct spelling of "firm" in state 8
Ad. 19	to add "Varieties which have only a collar instead of an abscission layer are heterozygous for the gene which controls the presence of the joint. These varieties are considered jointless and the abscission layer is considered absent."
Ad. 67 (i), 9.5	to read "Glasshouse or climatic chamber with permission to confined use of LMO/GMO"
Ad. 67 (i), 9.9	to read "The transformed <i>Agrobacterium tumefaciens</i> is a living modified organism (LMO; or genetically modified organism (GMO)) for which further regulations may apply."
TQ 5.	to remove all occurrences of the option "not applicable"
TQ 5.	to remove option "not tested" from characteristics 45 (5.17), 46 (5.18), 47 (5.19), 48 (5.20), 59 (5.21), 68 (5.22)
TQ 7.3.2	to move resistances to TQ 5. with option "not tested"

Partial revisions



*Brussels Sprouts (*Brassica oleracea* L. var. *gemmifera* DC.)

60. The subgroup discussed document TWV/57/15, presented by Ms. Gosia Blokker (Netherlands), and agreed the following:

Ad. 21	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In <u>the</u> case of a field trial, <u>the</u> type of observation is <u>VG VS</u>. In <u>the</u> case of a DNA marker test, <u>the</u> type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"><p>male fertile (pollen present)</p></div><div style="text-align: center;"><p>male sterile (pollen absent)</p></div></div> <p>DNA marker test:</p> <p>If the CMS marker is not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers. All varieties declared fertile are to be tested in a field trial.</p> <p><u>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</u></p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
Chars./Ad. 22 - 25	<p>- to check whether to have three states per race</p> <p>- to check whether to update the characteristic with more races/isolates</p>

*Cabbage (*Brassica oleracea* L.: *Brassica* (White Cabbage Group); *Brassica* (Savoy Cabbage Group); *Brassica* (Red Cabbage Group))

61. The subgroup discussed document TWV/57/17, presented by Ms. Gosia Blokker (Netherlands), and agreed with the proposed changes.

Ad. 35	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In <u>the</u> case of a field trial, <u>the</u> type of observation is VG VS. In <u>the</u> case of a DNA marker test, <u>the</u> type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>male fertile (pollen present)</p> </div> <div style="text-align: center;">  <p>male sterile (pollen absent)</p> </div> </div> <p>DNA marker test:</p> <p>If the CMS marker is not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers. All varieties declared fertile are to be tested in a field trial.</p> <p><u>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</u></p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
Chars./Ad. 37 - 40	<p>- to check whether to have three states per race</p> <p>- to check whether to update the characteristic with more races/isolates</p>

*Carrot (*Daucus carota* L.)

62. The subgroup discussed document TWV/57/6 and agreed the following:

TQ 5.	to remove all occurrences of the option "not applicable"
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*Cauliflower (*Brassica oleracea* L. convar *botrytis* (L.) Alef. var. *botrytis* L.)

63. The subgroup discussed document TWV/57/20, presented by Ms. Gosia Blokker (Netherlands), and agreed with the proposed changes.

Char. 25	to be indicated as VG/MS (as in current adopted version)
Ad. 25	<p>to read as follows:</p> <p><u>To be tested in a field and/or in a DNA marker test.</u></p> <p><u>In the case of a field trial, the type of observation is VG. In the case of a DNA marker test, the type of observation is MS.</u></p> <p><u>Field trial:</u></p> <p><u>Check de color of flowers.</u></p> <div>A photograph showing two cauliflower flower stalks against a light grey background. The stalk on the left has several small, white flowers and is labeled '1: white' below it. The stalk on the right has several small, yellow flowers and is labeled '2: yellow' below it.</div> <p><u>DNA marker test:</u></p> <p><u>The gene CCD4 is responsible for the white petal color in <i>Brassica oleracea</i> L. convar <i>botrytis</i> (L.) Alef. var. <i>botrytis</i> L. Functional loss of this gene is responsible for the yellow petal color. The markers corresponding with the functional gene and nonfunctional gene are based on 3 SNP's on position ~1296bp in the genes (Han et al. 2019).</u></p> <p><u>The markers can be performed in multiplex with the marker for male sterility (Ad. 28).</u></p> <p><u>The presence of the functional or nonfunctional CCD4 gene can be detected by the described co-dominant markers.</u></p> <p>[...]</p>

Ad. 28

To read as follows:

To be tested in a field trial and/or in a DNA marker test¹.

In the case of a field trial, the type of observation is **VG VS**. In the case of a DNA marker test, the type of observation is MS.

Field trial:

Absent: >70% of the plants fertile (open-pollinated varieties or hybrid varieties produced with self-incompatibility system)
Partial: 30% to 70% of the plants fertile (hybrid varieties produced with genic male sterility, in heterozygous state)
Total: < 30% of the plants fertile (hybrid varieties produced with cytoplasmic male sterility)



male fertile (pollen present)



male sterile (pollen absent)

DNA marker test and/or field trial:

All Varieties declared male fertile (state 1) or total male sterile (state 3) in the TQ, can be examined in a field trial or in a DNA marker test.

Varieties with partial male sterility (state 2) and vegetatively propagated, total male sterile lines (state 3) cannot be examined in a DNA marker test but must be observed in a field trial.

It should be noted that lines exist which are male sterile due to the homozygous recessive monogenic male sterility (GMS) gene. These lines are used for the production of hybrids which then normally will be male fertile. However when a heterozygous mother line is used, the produced hybrids will be partially male sterile (state 2). Due to their nature these lines have to be propagated vegetatively. They are male sterile but do not have the DNA marker for the presence of CMS male sterility. So vegetatively propagated male sterile lines cannot be examined in a DNA marker test but must be observed in a field trial.

For the cases where only a DNA marker test is allowed (state 1 and state 3 seed propagated varieties), if the CMS marker appears to be not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers. All varieties declared fertile are to be tested in a field trial. All varieties declared partially sterile (state 2) and vegetatively propagated lines declared total male sterile (state 3) should be tested in a field trial.

In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers or is segregating due to another mechanism.

The marker can be performed in multiplex with the markers for flower color (Ad. 25).

¹ The description of the method to test male sterility for *Brassica* (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV

	members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.
Chars./Ad. 29 - 32	- to check whether to have three states per race - to check whether to update the characteristic with more races/isolates

*Corn salad (*Valerianella locusta* L.; *Valerianella eriocarpa* Desv.)

64. The subgroup discussed document TWV/57/7, presented by Ms. Cécile Marchenay (Netherlands), and agreed with the proposed changes.

*Cucumber, Gherkin (*Cucumis sativus* L.)

65. The subgroup discussed document TWV/57/5 and agreed the following:

TQ 5.	to add characteristic 34 "Fruit: warts"
TQ 5.	to remove all occurrences of the option "not applicable"
TQ 5.	chars. 44, 45, 46, 48, 49: to delete option "not tested" (disease resistance characteristics used as grouping characteristics)



*Industrial Chicory (*Cichorium intybus* L. partim)

66. The subgroup discussed document TWV/57/8, presented by Ms. Gosia Blokker (Netherlands), and agreed the following:

Ad. 1	first sentence to read "The ploidy status of the plant can be assessed by standard cytological methods such as flow cytometry (DNA quantification method).
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*Kohlrabi (Brassica oleracea L. convar. acephala (DC.) Alef. var. gongylodes L. (Brassica oleracea L. Gongylodes Group))

67. The subgroup discussed document TWV/57/21, presented by Ms. Gosia Blokker (Netherlands), and agreed the following:

Char. 24	to keep footnotes with references to TGP/7
Ad. 24	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In <u>the</u> case of a field trial, <u>the</u> type of observation is <u>VG VS</u>. In <u>the</u> case of a DNA marker test, <u>the</u> type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>male fertile (pollen present)</p> </div> <div style="text-align: center;">  <p>male sterile (pollen absent)</p> </div> </div> <p>DNA marker test:</p> <p>If the CMS marker is not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers. All varieties declared fertile are to be tested in a field trial.</p> <p><u>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</u></p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
Chars./Ad. 25 - 28	<p>- to check whether to have three states per race</p> <p>- to check whether to update the characteristic with more races/isolates</p>

*Lettuce (*Lactuca sativa* L.)

68. The subgroup discussed document TWV/57/12, presented by Ms. Cécile Marchenay (Netherlands), and agreed the following:

Ad. 38 to 53, 8.2	to read "For isolates with a higher number than BI: 16EU, ..."
TQ 5.	not to include the following characteristics: 2 (5.2), 3 (5.3), 7 (5.5), 18 (5.11), 20 (5.12), 22 (5.13), 25 (5.14), 26 (5.15), 27 (5.16)
TQ 5.	to remove all occurrences of the option "not applicable"

*Maize (*Zea mays* L.)

69. The subgroup discussed document TWV/57/4-TWA/52/4 and agreed the following:

Char. 24.1, 24.2	to check whether to keep unchanged as in current adopted version
TQ 5.	to remove all occurrences of the option "not applicable"

*Melon (*Cucumis melo* L.)

70. The subgroup discussed document TWV/57/22, presented by Ms. Chrystelle Jouy (France), and agreed the following:

Chars. 69.1 - 69.3	to delete (*)
Chars. 69.3, 69.4	to be indicated as QL
Ad. 69.1 - 69.3, 4.	to read "e.g. GEVES (FR)" (keep footnote for GEVES)
Ad. 69.1 - 69.3, 5.	to add link for footnote ⁴
Ad. 69.1 - 69.3, 8.8	to read "Between 4 to 8 h or keep cool to prevent spore germination"
Ad. 69.1 - 69.3, 9.3.1 – 9.3.3	left column to read "Control varieties for race ..."
Ad. 69.1 - 69.3, 9.3.3	to read "Resistance absent: Marianna "Resistance present: Perlita, Charentais Fom-1, Védrentais"
Ad. 69.1 - 69.3, 9.9	to read "... and not above 24°C during the day."
Ad. 69.1 - 69.3, 11.2	illustration below 11.2: to replace "Mock" with "Non-inoculated plant"

Ad. 69.1 - 69.3, 11.3	<p>to read:</p> <p>Validation on controls. In case of the Fom: 0 and Fom:1 tests: Controls expected response: Resistance absent: most of the plants at classes 2 and 3 Resistance present: most of the plants at classes 0 and 1, sometimes very few plants at classes 2 or 3.</p> <p>In case of the Fom: 2 test Controls expected response:</p> <ul style="list-style-type: none"> • Susceptible controls, with UPOV characteristic state ‘Resistance absent’, should have most of the plants in observation classes 2 or 3, and few or no plants in observation classes 0 or 1. <ul style="list-style-type: none"> ○ Marianna, the susceptible control is less susceptible than Charentais Fom-2, Charentais T • Resistant controls should have most of the plants in observation classes 0 or 1, and few or no plant in observation classes 2 or 3. <ul style="list-style-type: none"> ○ Perlita, the lower threshold resistance control, should have at least some plants in observation class 1, 2, or 3. It has to be less resistant than Charentais Fom-1, Védrentais.
Ad. 69.1 - 69.3, 12.	<p>illustration below 12.: to replace current illustration for “Resistance to Fom: 2” with new one:</p> <div style="text-align: center;"> </div>
Ad. 69.1 - 69.3, 13.	to read “...In the case of inoculum increased in e.g. Messiaen (1991) synthetic liquid medium, ...”
Char. 70	to check translations (state 1 in DE and ES)
TQ 5.	not to include characteristics 65 (5.23), 66 (5.24), 67 (5.25)
TQ 5.	to remove all occurrences of the option “not applicable”

*Pea (*Pisum sativum* L.)

71. The subgroup discussed document TWV/57/13, presented by Ms. Cécile Marchenay (Netherlands), and agreed the following:

Char. 61, Ad. 61	to check whether to complete characteristic and explanation by adding races and/or isolates
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*Radish; Black Radish (*Raphanus sativus* L. var *sativus*; *Raphanus sativus* L. var. *niger* (Mill.) S. Kerner)

72. The subgroup discussed document TWV/57/9, presented by Mr. Dominique Rousseau (France), and agreed with the proposed changes.



*Spinach (*Spinacia oleracea* L.)

73. The subgroup discussed document TWV/57/11, presented by Ms. Marian van Leeuwen (Netherlands), and agreed the following:

Ad. 17	<ul style="list-style-type: none"> - to delete notes 1 and 3 - wording below illustrations to read “round pseudo fruit” and “spined pseudo fruit” - first paragraph to read “...Varieties may consist of only plants with round pseudo fruits (note 1), only plants with spined pseudo fruits (note 3) or of both plants with round pseudo fruits as well as plants with spined pseudo fruits (note 2).” - last paragraph: to delete last sentence and move to be the first paragraph.
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*Swede, Rutabaga (*Brassica napus* L. var. *napobrassica* (L.) Rchb.)

74. The subgroup discussed document TWV/57/16, presented by Ms. Gosia Blokker (Netherlands), and agreed the following:

Char. 23	to be indicated as VS/MS
Ad. 23	<p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p><u>In the case of a field trial, the type of observation is VS. In the case of a DNA marker test, the type of observation is MS.</u></p> <p><u>Field trial:</u></p> <p>Examination should be made on fully opened flowers; tapping or shaking the flowering stem will release pollen, which, if present, can be observed on dark colored paper or card. The absence of pollen production is an indication of male sterility. <u>The presence of pollen production is an indication of male fertility.</u></p> <div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"><p>male fertile (pollen present)</p></div><div style="text-align: center;"><p>male sterile (pollen absent)</p></div></div> <p><u>DNA marker test</u></p> <p><u>If the CMS marker is present, the variety is expected to have male sterile flowers (production of pollen absent). In cases where the CMS marker is not present, the variety is expected to have male fertile flowers (production of pollen present).</u></p> <p><u>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male sterile (production of pollen: absent) or male fertile flowers (production of pollen: present) due to another mechanism.</u></p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>

*Tomato Rootstocks

75. The subgroup discussed document TWV/57/19 and agreed with the proposed changes.

*Vegetable Marrow, Squash (*Cucurbita pepo* L.)

76. The subgroup discussed document TWV/57/23, presented by Ms. Chrystelle Jouy (France), and agreed the following:

Char. 82	to check translations (state 1 in DE and ES)
Char. 83	to be indicated as QL
Ad. 83, 11.3	to read "On three controls: Cora, Sofia, Mikonos or Syros ..."
TQ 5.	to remove all occurrences of the option "not applicable"

*Watermelon (*Citrullus lanatus* (Thunb.) Matsum. et Naka)

77. The subgroup discussed document TWV/57/14, presented by Ms. Gosia Blokker (Netherlands), and agreed the following:

TQ 5.	to remove all occurrences of the option "not applicable"
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Recommendations on draft Test Guidelines

(a) *Test Guidelines to be put forward for adoption by the Technical Committee*

78. The TWV agreed that the following draft Test Guidelines be submitted to the TC for adoption at its fifty-ninth session, to be held in Geneva on October 23 and 24, 2023, on the basis of the following documents and the comments in this report:

Full draft Test Guidelines

<u>Subject</u>	<u>Basic Document(s) (2023)</u>
*Chinese cabbage (<i>Brassica rapa</i> L. subsp. <i>pekinensis</i> (Lour.) Kitam., hybrids between <i>B. rapa</i> L. Emend. Metzg. ssp. <i>pekinensis</i> (Lour.) Hanelt and <i>B. rapa</i> L. Emend. Metzg. ssp. <i>chinensis</i> (L.) Hanelt, hybrids between <i>B. rapa</i> L. Emend. Metzg. ssp. <i>pekinensis</i> (Lour.) Hanelt and <i>B. rapa</i> L. var. <i>rapa</i> (L.) Thell., <i>Brassica x turicensis</i> O. E. Schulz & Thell.) (Revision)	TG/105/5(proj.3)
*Kale (<i>Brassica oleracea</i> L. var. <i>costata</i> DC.; <i>B. oleracea</i> L. var. <i>medullosa</i> Thell.; <i>B. oleracea</i> L. var. <i>sabellica</i> L.; <i>B. oleracea</i> L. var. <i>viridis</i> L.; <i>B. oleracea</i> L. var. <i>palmifolia</i> DC.) (Revision)	TG/90/7(proj.5)
*Pepper (<i>Capsicum annuum</i> L.) (Revision)	TG/76/9(proj.5)
*Tomato (<i>Solanum lycopersicum</i> L.) (Revision)	TG/44/12(proj.3)



Partial revisions

<u>Subject</u>	<u>Basic Document(s) (2023)</u>
Broccoli (<i>Brassica oleracea</i> L. var. <i>italica</i> Plenck) - to change explanation on CMS marker	TG/151/5
*Brussels Sprouts (<i>Brassica oleracea</i> L. var. <i>gemmifera</i> DC.) - to change explanation on CMS marker	TG/54/7 Rev., TWV/57/15
*Cabbage (<i>Brassica oleracea</i> L.: <i>Brassica</i> (White Cabbage Group); <i>Brassica</i> (Savoy Cabbage Group); <i>Brassica</i> (Red Cabbage Group)) - to change explanation on CMS marker	TG/48/7 Rev., TWV/57/17
*Carrot (<i>Daucus carota</i> L.) - TQ: adding characteristics from T. o. C.	TG/49/8 Corr., TWV/57/6

*Cauliflower (<i>Brassica oleracea</i> L. convar <i>botrytis</i> (L.) Alef. var. <i>botrytis</i> L.) - to change explanation on CMS marker - to add possibility to observed with the marker for flower color	TG/45/7 Rev., TWV/57/20
*Cornsalad (<i>Valerianella locusta</i> L.; <i>Valerianella eriocarpa</i> Desv.) - Char. "Leaf: length"	TG/75/7, TWV/57/7
Cucumber, Gherkin (<i>Cucumis sativus</i> L.) - TQ: adding characteristics from T. o. C.	TG/61/7 Rev. 2 Corr. 2, TWV/57/5
*Industrial Chicory (<i>Cichorium intybus</i> L. partim) -Ploidy	TG/172/4, TWV/57/8
*Kohlrabi (<i>Brassica oleracea</i> L. convar. <i>acephala</i> (DC.) Alef. var. <i>gongylodes</i> L. (<i>Brassica oleracea</i> L. <i>Gongylodes</i> Group)) - to change explanation on CMS marker	TG/65/4 Rev., TWV/57/21
*Lettuce (<i>Lactuca sativa</i> L.) - to add new isolate 36 to BI - TQ: adding characteristics from T. o. C.	TG/13/11 Rev. 2, TWV/57/12
*Maize (<i>Zea mays</i> L.) - TQ: adding characteristics from T. o. C.	TG/2/7, TWV/57/4-TWA/52/4
*Melon (<i>Cucumis melo</i> L.) - addition of Char. 69 "Resistance to Fom", - addition of Char. 70 "Resistance to Px" - TQ: adding characteristics from T. o. C.	TG/104/5 Rev. 2, TWV/57/22
*Radish; Black Radish (<i>Raphanus sativus</i> L. var. <i>sativus</i> ; <i>Raphanus sativus</i> L. var. <i>niger</i> (Mill.) S. Kerner) - Ploidy	TG/63/7-TG/64/7 Rev. Corr., TWV/57/9
*Spinach (<i>Spinacia oleracea</i> L.) - Char. 17 "Seed: spines (harvested seed)" - TQ: adding characteristics from T. o. C.	TG/55/7 Rev. 6, TWV/57/11
*Swede, Rutabaga (<i>Brassica napus</i> L. var. <i>napobrassica</i> (L.) Rchb.) - to add explanation on CMS marker	TG/89/6 Rev., TWV/57/16
Tomato Rootstocks (<i>Solanum habrochaites</i> S. Knapp & D.M. Spooner; <i>Solanum lycopersicum</i> L. x <i>Solanum habrochaites</i> S. Knapp & D.M. Spooner; <i>Solanum lycopersicum</i> L. x <i>Solanum peruvianum</i> (L.) Mill.; <i>Solanum pimpinellifolium</i> L. x <i>Solanum habrochaites</i> S. Knapp & D.M. Spooner) - TQ: adding characteristics from T. o. C.	TG/294/1 Corr. Rev. 4, TWV/57/16
*Vegetable Marrow, Squash (<i>Cucurbita pepo</i> L.) - to add new Characteristics "Resistance to ZYMV" and "Resistance to Watermelon mosaic virus" - TQ: adding characteristics from T. o. C.	TG/119/4 Corr. 2, TWV/57/23
*Watermelon (<i>Citrullus lanatus</i> (Thunb.) Matsum. et Naka) - Ploidy - TQ: adding characteristics from T. o. C.	TG/142/5 Rev., TWV/57/14

Partial revision of Test Guidelines for Brassica oleracea species

79. The TWV noted that all Test Guidelines for *Brassica oleracea* species had been revised for updating the characteristic “male sterility”, except the Test Guidelines for Broccoli (*Brassica oleracea* L. var. *italica* Plenck, document TG/151/5). The TWV agreed that the omission of the Test Guidelines for Broccoli had been a mistake and agreed to propose to the Technical Committee the following amendment to characteristic 24 and its explanation in TG Broccoli:

Char. 24 Ad. 24	<p>to be indicated as VS/MS</p> <p>to read as follows:</p> <p>To be tested in a field trial and/or in a DNA marker test¹.</p> <p>In <u>the</u> case of a field trial, <u>the</u> type of observation is VG VS. In <u>the</u> case of a DNA marker test, <u>the</u> type of observation is MS.</p> <p>Field trial:</p> <p>Check presence of pollen on stamen: if pollen on stamen is present then male sterility is absent; if pollen on stamen is absent then male sterility is present.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>male fertile (pollen present)</p> </div> <div style="text-align: center;">  <p>male sterile (pollen absent)</p> </div> </div> <p>DNA marker test:</p> <p>If the CMS marker is not present, a field trial should be performed to observe whether the variety is male sterile (on another mechanism) or fertile. the variety is expected to have male fertile flowers. In cases where the CMS marker is present, the variety is expected to have male sterile flowers. All varieties declared fertile are to be tested in a field trial.</p> <p><u>In case the DNA marker test result does not confirm the declaration in the TQ, a field trial should be performed to observe whether the variety has male fertile or male sterile flowers due to another mechanism.</u></p> <p>¹ The description of the method to test male sterility for <i>Brassica</i> (CMS marker) is covered by a trade secret. The owner of the trade secret, Syngenta Seeds B.V., has given its consent for the use of the CMS marker solely for the purposes of examination of Distinctness, Uniformity and Stability (DUS) and for the development of variety descriptions by UPOV and authorities of UPOV members. Syngenta Seeds B.V. declares that neither UPOV, nor authorities of UPOV members that use the CMS marker for the above purposes will be held accountable for possible (mis)use of the CMS marker by third parties. Please contact Naktuinbouw, Netherlands, to obtain the method and information on the CMS marker for the purposes mentioned above.</p>
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(b) *Test Guidelines to be discussed at the fifty-eighth session*

80. The TWV agreed to discuss the following draft Test Guidelines at its fifty-eighth session:

Full draft Test Guidelines

<u>Subject</u>	<u>Basic Document(s) (2023)</u>
*Egg plant (<i>Solanum melongena</i> L.) (Revision)	TG/117/5(proj.3)
Garlic (<i>Allium sativum</i> L.) (Revision)	TG/162/4 Rev.

Ginger (<i>Zingiber officinale</i> Rosc.) (Revision)	TG/153/3
Parsley (<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill)	TG/136/6(proj.1)

Partial revisions

<u>Subject</u>	<u>Basic Document(s) (2023)</u>
*Asparagus (<i>Asparagus officinalis</i> L.) - Char. 16 "Type of flowering"	TG/130/4
*Broccoli (<i>Brassica oleracea</i> L. var. <i>italica</i> Plenck) - to add new resistance clubroot	TG/151/5
*Brussels Sprouts (<i>Brassica oleracea</i> L. var. <i>gemmifera</i> DC.) - to add new resistance clubroot	TG/54/7 Rev., TWV/57/15
*Cabbage (<i>Brassica oleracea</i> L.: <i>Brassica</i> (White Cabbage Group); <i>Brassica</i> (Savoy Cabbage Group); <i>Brassica</i> (Red Cabbage Group)) - to add new resistance clubroot	TG/48/7 Rev., TWV/57/17
*Cauliflower (<i>Brassica oleracea</i> L. convar <i>botrytis</i> (L.) Alef. var. <i>botrytis</i> L.) - to add new resistance clubroot	TG/45/7 Rev., TWV/57/20
*Cucumber, Gherkin (<i>Cucumis sativus</i> L.) - addition of resistance to Cucumber green mottle mosaic virus	TG/61/7 Rev. 2 Corr. 2
*Kohlrabi (<i>Brassica oleracea</i> L. convar. <i>acephala</i> (DC.) Alef. var. <i>gongylodes</i> L. (<i>Brassica oleracea</i> L. <i>Gongylodes</i> Group)) - to add new resistance clubroot	TG/65/4 Rev., TWV/57/21
*Lettuce (<i>Lactuca sativa</i> L.) - Resistance to <i>Bremia lactucae</i> Races 16EU to 27EU (chars. 38 to 47, including grouping characteristics) - revision of <i>Fusarium oxysporum</i> f. sp. <i>lactucae</i> Race 1 - addition of Resistance to <i>Fusarium oxysporum</i> f. sp. <i>lactucae</i> Race 4	TG/13/11 Rev. 2, TWV/57/12
*Maize (<i>Zea mays</i> L.) - Characteristics 24.1 and 24.2 - Addition of new characteristics Tassel: sterility of male flowers Secondary color of grain - addition of characteristic to TQ 5	TG/2/7, TWV/57/4-TWA/52/4
*Pea (<i>Pisum sativum</i> L.) - addition of resistance to <i>Peronospora viciae</i> (Pv) (downy mildew)	TG/7/10 Rev. 2, TWV/57/13
Tomato (<i>Solanum lycopersicum</i> L.) - addition of shelf life characteristic	TG/44/12(proj.3)

81. The leading experts, interested experts and timetables for the development of the Test Guidelines are set out in Annex II to this report.

(c) *Draft Test Guidelines for possible future discussion*

82. The TWV agreed on the following draft Test Guidelines for discussion at a future session:

<u>Subject</u>	<u>Basic Document(s)</u>
Swede, Rutabaga (<i>Brassica napus</i> L. var. <i>napobrassica</i> (L.) Rchb.)	TG/89/6 Rev.
Water spinach (<i>Ipomoea aquatica</i>)	NEW

(d) *Participation in discussions of Test Guidelines from other TWPs*

83. The TWV noted that no Interested Experts were identified to participate in the development by the TWA of a new Test Guidelines for Mung Bean (*Vigna radiata* (L.) R. Wilczek).

Matters for information

84. The TWV noted that the following documents contained matters for information only:
- Short reports on developments in plant variety protection
 - (a) Reports from members and observers (document TWV/57/3)
 - (b) Reports on developments within UPOV (document TWV/57/2)
 - Development of guidance and information materials: matters for information (document TWP/7/2)
 - i. Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”: Section 9: “The Combined-Over-Years Uniformity Criterion (COYU)” (document TWP/7/2)
 - Cooperation in examination (document TWP/7/1)
 - Information and databases
 - (a) UPOV information databases (document TWP/7/7)
 - (b) Variety description databases (document TWP/7/6)
 - (c) Exchange and use of software and equipment (document TWP/7/5)
 - (d) UPOV PRISMA (document TWP/7/1)
 - Molecular Techniques: Matters for information (document TWP/7/3)
 - Variety denominations (document TWP/7/8)
 - Guidance for drafters of Test Guidelines (document TWP/7/1)

Date and place of the next session

85. The TWV agreed to hold its fifty-eighth session by virtual means from April 22 to 26, 2024.

Future program

86. Documents would be prepared in case of developments to be reported or presentations from members and observers on agenda items proposed for the session.

87. In order to allow sufficient time in advance of the meeting to post the documents and provide comments, all documents and presentations invited or to be prepared should be sent to the Office of the Union by March 8, 2024.

88. The TWV proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda

Matters for discussion

3. Procedures for DUS examination (presentations invited)
4. Proposals for ring-tests (presentations invited)
5. Characteristics with one single observation in multi-annual testing (presentations invited)
6. Acceptance of final reports based on variety descriptions with the same notes (presentations invited)
7. Issue of reporting of the absence of similar varieties mentioned under chapter 16 of variety descriptions (presentations invited)
8. Assessing distinctness in disease resistance characteristics (document to be prepared by France and the Netherlands)
9. Image analysis of vegetable crops (presentations invited)
10. Molecular techniques in variety examination (presentations invited)

11. Experiences with new types and species (oral reports invited)
12. Discussions on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. Date and place of the next session
15. Future program
16. Adoption of the Report on the session (if time permits)

Matters for information

17. Reports from members and observers (reports invited)
18. Reports on developments within UPOV (general developments, including variety denominations, information databases, exchange and use of software and equipment)
19. Closing of the session

Visit

89. On the morning of May 4, 2023, the TWV visited the Yuksel Seeds company and was welcomed by Mr. Halit Ince, product development manager, who made a presentation about the company and its plant breeding program for different *Cucurbitaceae* and *Solanaceae* species. The TWV toured the facilities and visited a greenhouse accompanied by Mr. Onder Durkal and Dr. Ercan Ozkayanak. The TWV visited a greenhouse specially prepared to demonstrate the range of varieties bred by the company. Participants discussed the variation in varieties color, shape and taste of different tomato varieties developed by the company.

90. In the afternoon of May 4, the TWV visited the Multi Tohum seed company and was welcomed by Mr. Mehmet Ulger, CEO. The TWV toured the greenhouses and seed processing facilities.

91. The TWV noted that visitors were not allowed inside the greenhouses due to quarantine measures to avoid introduction of diseases.

92. The TWV discussed the importance of protecting F1 hybrids of vegetable crops and agreed there were opportunities to further collaborate with plant breeders to increase the use of plant variety protection for F1 hybrids of vegetable crops.

93. The TWV noted that disease resistances were mentioned by both companies as a major importance factor for vegetable breeding.

94. The TWV noted that the Tomato Brown Rugose Fruit Virus (ToBRFV) was currently causing severe losses in different vegetable cultivation areas and that resistance to ToBRFV was an important breeding objective for plant breeders. The TWV noted that both companies visited expected to protect their varieties as soon as varieties resistant to important diseases were developed and agreed this would require partial revision of Test Guidelines to introduce such characteristics.

95. On the morning of May 5, 2023, the TWV visited the Antalya Seed Certification and Testing Directorate and was welcomed by Mr. Ahmet Karatas, who explained the activities conducted at the Directorate on seed certification, import and export control and training.

96. The TWV received welcome remarks by Mr. Sakir Berktas, Director of Variety Registration and Seed Certification, Ministry of Agriculture and Forestry, who explained the organization of DUS examination and plant variety protection in the country.

97. The TWV received a presentation from Ms. Güleda Oktem, DUS expert, on DUS testing in Türkiye.

98. The TWV received welcome remarks from Mr. Muhtesem Torun, Secretary General of Turkish Seed Union (TÜRKTÖB).

99. The TWV received welcome remarks from Mr. Sezgin Karadeniz, Head, Seed Policies Department and PBR Office, General Directorate of Plant Production, Ministry of Agriculture and Forestry.

100. The TWV received welcome remarks from Mr. Cengiz Budan, Deputy General Director of Plant Production, Ministry of Agriculture and Forestry.

101. The TWV visited the seed testing laboratory and was welcomed by Mr. Selahattin Cenk Yetik and Mr. Mehmet Kutlu, Agricultural Engineers responsible for the laboratories.

102. The TWV discussed DUS examination of cucumber at the training facilities of the Directorate and exchanged experiences with Mr. Kürsat Murat Soylu, Agricultural Engineer, Variety registration and Seed certification Centre, Ministry of Agriculture and Forestry.

103. The TWV adopted this report at the close of its session.

[Annex I follows]

ANNEX I

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[Annex II follows]

ANNEX II

LIST OF LEADING EXPERTS

**DRAFT TEST GUIDELINES TO BE SUBMITTED
TO THE TECHNICAL COMMITTEE IN 2023**

All requested information to be submitted to the Office of the Union

before June 16, 2023Full draft Test Guidelines

Species	Basic Document	Leading Expert(s)
*Chinese cabbage (<i>Brassica rapa</i> L. subsp. <i>pekinensis</i> (Lour.) Kitam., hybrids between <i>B. rapa</i> L. Emend. Metzg. ssp. <i>pekinensis</i> (Lour.) Hanelt and <i>B. rapa</i> L. Emend. Metzg. ssp. <i>chinensis</i> (L.) Hanelt, hybrids between <i>B. rapa</i> L. Emend. Metzg. ssp. <i>pekinensis</i> (Lour.) Hanelt and <i>B. rapa</i> L. var. <i>rapa</i> (L.) Thell., <i>Brassica x turicensis</i> O. E. Schulz & Thell.) (Revision)	TG/105/5(proj.3)	Mr. Chan Woong Park (KR)
*Kale (<i>Brassica oleracea</i> L. var. <i>costata</i> DC.; <i>B. oleracea</i> L. var. <i>medullosa</i> Thell.; <i>B. oleracea</i> L. var. <i>sabellica</i> L.; <i>B. oleracea</i> L. var. <i>viridis</i> L.; <i>B. oleracea</i> L. var. <i>palmifolia</i> DC.) (Revision)	TG/90/7(proj.5)	Mr. Toshiya Kobayashi (JP)
*Pepper (<i>Capsicum annuum</i> L.) (Revision)	TG/76/9(proj.5)	Ms. Marian van Leeuwen (NL)
*Tomato (<i>Solanum lycopersicum</i> L.) (Revision)	TG/44/12(proj.3)	Ms. Cécile Marchenay (NL)

Partial revisions

Species	Basic Document	Leading Expert(s)
Broccoli (<i>Brassica oleracea</i> L. var. <i>italica</i> Plenck) - to change explanation on CMS marker	TG/151/5	Ms. Gosia Blokker (NL)
*Brussels Sprouts (<i>Brassica oleracea</i> L. var. <i>gemmifera</i> DC.) - to change explanation on CMS marker	TG/54/7 Rev., TWV/57/15	Ms. Gosia Blokker (NL)
*Cabbage (<i>Brassica oleracea</i> L.: <i>Brassica</i> (White Cabbage Group); <i>Brassica</i> (Savoy Cabbage Group); <i>Brassica</i> (Red Cabbage Group)) - to change explanation on CMS marker	TG/48/7 Rev., TWV/57/17	Ms. Gosia Blokker (NL)
*Carrot (<i>Daucus carota</i> L.) - TQ: adding characteristics from T. o. C.	TG/49/8 Corr., TWV/57/6	
*Cauliflower (<i>Brassica oleracea</i> L. convar <i>botrytis</i> (L.) Alef. var. <i>botrytis</i> L.) - to change explanation on CMS marker - to add possibility to observed with the marker for flower color	TG/45/7 Rev., TWV/57/20	Ms. Gosia Blokker (NL)
*Corn salad (<i>Valerianella locusta</i> L.; <i>Valerianella eriocarpa</i> Desv.) - Char. "Leaf: length"	TG/75/7, TWV/57/7	Ms. Cécile Marchenay (NL)

Species	Basic Document	Leading Expert(s)
Cucumber, Gherkin (<i>Cucumis sativus</i> L.) - TQ: adding characteristics from T. o. C.	TG/61/7 Rev. 2 Corr. 2, TWV/57/5	
*Industrial Chicory (<i>Cichorium intybus</i> L. partim) -Ploidy	TG/172/4, TWV/57/8	Ms. Gosia Blokker (NL)
*Kohlrabi (<i>Brassica oleracea</i> L. convar. <i>acephala</i> (DC.) Alef. var. <i>gongylodes</i> L. (<i>Brassica oleracea</i> L. <i>Gongylodes</i> Group)) - to change explanation on CMS marker	TG/65/4 Rev., TWV/57/21	Ms. Gosia Blokker (NL)
*Lettuce (<i>Lactuca sativa</i> L.) - to add new isolate 36 to BI - TQ: adding characteristics from T. o. C.	TG/13/11 Rev. 2, TWV/57/12	Ms. Cécile Marchenay (NL)
*Maize (<i>Zea mays</i> L.) - TQ: adding characteristics from T. o. C.	TG/2/7, TWV/57/4-TWA/52/4	Ms. Bronislava Bátorová (QZ)
*Melon (<i>Cucumis melo</i> L.) - addition of Char. 69 "Resistance to Fom", - addition of Char. 70 "Resistance to Px" - TQ: adding characteristics from T. o. C.	TG/104/5 Rev. 2, TWV/57/22	Ms. Chrystelle Jouy (FR)
*Radish; Black Radish (<i>Raphanus sativus</i> L. var. <i>sativus</i> ; <i>Raphanus sativus</i> L. var. <i>niger</i> (Mill.) S. Kerner) - Ploidy	TG/63/7-TG/64/7 Rev. Corr., TWV/57/9	Mr. Dominique Rousseau (FR)
*Spinach (<i>Spinacia oleracea</i> L.) - Char. 17 "Seed: spines (harvested seed)" - TQ: adding characteristics from T. o. C.	TG/55/7 Rev. 6, TWV/57/11	Ms. Marian van Leeuwen (NL)
*Swede, Rutabaga (<i>Brassica napus</i> L. var. <i>napobrassica</i> (L.) Rchb.) - to add explanation on CMS marker	TG/89/6 Rev., TWV/57/16	Ms. Gosia Blokker (NL)
Tomato Rootstocks (<i>Solanum habrochaites</i> S. Knapp & D.M. Spooner; <i>Solanum lycopersicum</i> L. x <i>Solanum habrochaites</i> S. Knapp & D.M. Spooner; <i>Solanum lycopersicum</i> L. x <i>Solanum peruvianum</i> (L.) Mill.; <i>Solanum pimpinellifolium</i> L. x <i>Solanum habrochaites</i> S. Knapp & D.M. Spooner) - TQ: adding characteristics from T. o. C.	TG/294/1 Corr. Rev. 4, TWV/57/16	
*Vegetable Marrow, Squash (<i>Cucurbita pepo</i> L.) - to add new Characteristics "Resistance to ZYMV" and "Resistance to Watermelon mosaic virus" - TQ: adding characteristics from T. o. C.	TG/119/4 Corr. 2, TWV/57/23	Ms. Chrystelle Jouy (FR)
*Watermelon (<i>Citrullus lanatus</i> (Thunb.) Matsum. et Naka) - Ploidy - TQ: adding characteristics from T. o. C.	TG/142/5 Rev., TWV/57/14	Ms. Gosia Blokker (NL)

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWV/58

(* indicates possible final draft Test Guidelines)

**(Guideline date for Subgroup draft to be circulated by Leading Expert: January 12, 2024
Guideline date for comments to Leading Expert by Subgroup: February 9, 2024)**

New draft to be submitted to the Office of the Union
by March 8, 2024

Full draft Test Guidelines

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization) ²
*Egg plant (<i>Solanum melongena</i> L.) (Revision)	TG/117/5(proj.3)	Ms. Céline Morineau (QZ)	AU, BG, BR, CN, DE, ES, FR, HU, IT, JP, KE, KR, NL, SK, TR, CLI, Euroseeds, ISF, Office
Garlic (<i>Allium sativum</i> L.) (Revision)	TG/162/4 Rev.	Ms. Chrystelle Jouy (FR)	CN, CZ, IT, JP, KR, NL, QZ, TR, Euroseeds, ISF, Office
Ginger (<i>Zingiber officinale</i> Rosc.) (Revision)	TG/153/3	Mr. Toshiya Kobayashi (JP)	KR, NZ, QZ, Euroseeds, ISF, Office
Parsley (<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill)	TG/136/6(proj.1)	Ms. Swenja Tams (DE)	AU, CN, ES, FR, IT, JP, NL, QZ, TR, Euroseeds, ISF, Office

Partial revisions

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization) ²
*Asparagus (<i>Asparagus officinalis</i> L.) - Char. 16 "Type of flowering"	TG/130/4	Mr. Yoshiyuki Ohno (JP)	FR, IT, NL, QZ, CLI, Euroseeds, ISF, Office
*Broccoli (<i>Brassica oleracea</i> L. var. <i>italica</i> Plenck) - to add new resistance clubroot	TG/151/5	Ms. Gosia Blokker (NL)	FR, IT, JP, QZ, ZA, CLI, Euroseeds, ISF, Office
*Brussels Sprouts (<i>Brassica oleracea</i> L. var. <i>gemmifera</i> DC.) - to add new resistance clubroot	TG/54/7 Rev., TWV/57/15	Ms. Gosia Blokker (NL)	FR, GB, IT, JP, NL, QZ, CLI, Euroseeds, ISF, Office
*Cabbage (<i>Brassica oleracea</i> L.: <i>Brassica</i> (White Cabbage Group); <i>Brassica</i> (Savoy Cabbage Group); <i>Brassica</i> (Red Cabbage Group)) - to add new resistance clubroot	TG/48/7 Rev., TWV/57/17	Ms. Gosia Blokker (NL)	BG, CN, DE, ES, FR, IT, JP, NL, QZ, RU, ZA, CLI, Euroseeds, ISF, Office
*Cauliflower (<i>Brassica oleracea</i> L. convar <i>botrytis</i> (L.) Alef. var. <i>botrytis</i> L.) - to add new resistance clubroot	TG/45/7 Rev., TWV/57/20	Ms. Gosia Blokker (NL)	CN, DE, ES, FR, IT, JP, NL, QZ, CLI, Euroseeds, ISF, Office

² for name of experts, see list of participants

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization) ²
*Cucumber, Gherkin (<i>Cucumis sativus</i> L.) - addition of resistance to Cucumber green mottle mosaic virus	TG/61/7 Rev. 2 Corr. 2	Ms. Gosia Blokker (NL)	BG, CN, CZ, FR, DE, HU, IT, JP, KR, QZ, RU, CLI, Euroseeds, ISF, Office
*Kohlrabi (<i>Brassica oleracea</i> L. convar. <i>acephala</i> (DC.) Alef. var. <i>gongylodes</i> L. (<i>Brassica oleracea</i> L. <i>Gongylodes</i> Group)) - to add new resistance clubroot	TG/65/4 Rev., TWV/57/21	Ms. Gosia Blokker (NL)	DE, NL, FR, QZ, CLI, Euroseeds, ISF, Office
*Lettuce (<i>Lactuca sativa</i> L.) - Resistance to <i>Bremia lactucae</i> Races 16EU to 27EU (chars. 38 to 47, including grouping characteristics) - revision of <i>Fusarium oxysporum</i> f. sp. <i>lactucae</i> Race 1 - addition of Resistance to <i>Fusarium oxysporum</i> f. sp. <i>lactucae</i> Race 4	TG/13/11 Rev. 2, TWV/57/12	Mr. Dominique Rousseau (FR)	AU, CA, DE, ES, IT, NL, FR, JP, QZ, CLI, Euroseeds, ISF, SAA, Office
*Maize (<i>Zea mays</i> L.) - Characteristics 24.1 and 24.2 - Addition of new characteristics Tassel: sterility of male flowers Secondary color of grain - addition of characteristic to TQ 5	TG/2/7, TWV/57/4-TWA/52/4	Ms. Cécile Marchenay (NL)	BG, CN, FR, HU, JP, KR, QZ, SK, TR, TZ, US, ZA, CLI, Euroseeds, ISF, SAA, Office
*Pea (<i>Pisum sativum</i> L.) - addition of resistance to <i>Peronospora viciae</i> (Pv) (downy mildew)	TG/7/10 Rev. 2, TWV/57/13	Ms. Cécile Marchenay (NL)	CA, CZ, DE, ES, FR, GB, HU, NL, QZ, US, CLI, Euroseeds, ISF, SAA, Office
Tomato (<i>Solanum lycopersicum</i> L.) - addition of shelf life characteristic	TG/44/12(proj.3)	Ms. Güleda Öktem (TR)	BG, CN, FR, HU, IT, JP, KR, NL, QZ, TZ, US, ZA, CLI, Euroseeds, ISF, SAA, Office

Draft Test Guidelines for possible future discussion

Species	Basic Document
Swede, Rutabaga (<i>Brassica napus</i> L. var. <i>napobrassica</i> (L.) Rchb.)	TG/89/6 Rev.
Water spinach (<i>Ipomoea aquatica</i>)	NEW

[End of Annex II and of document]